CLAIMS:

1. An oral phototherapy applicator comprising

a body sized and shaped so as to fit at least partially in a user's mouth and adapted to conform to the shape of at least a portion of the oral cavity, and

at least one radiation emitter coupled to the body to irradiate a portion of the oral cavity with phototherapeutic radiation.

2. The apparatus of claim 1 wherein the emitter further comprises at least one source of radiation having wavelength components in at least two separate spectral bands.

3. The apparatus of claim 1 wherein the emitter further comprises at least two sources of radiation emitting different spectral bands of radiation.

4. The apparatus of claim 1 wherein the emitter further comprises at least one radiation source selected from the group of light-emitting diodes, superluminescent diodes, laser diodes, vertical cavity surface emitting lasers, fiber lasers, fluorescent solid-state sources, and lamps.

5. The apparatus of claim 1 wherein the apparatus further comprises a controller for controlling at least one parameter for irradiation of the oral cavity selected from the group of wavelength, power, pulsewidth and treatment time.

6. The apparatus of claim 1 wherein the apparatus further comprises an optical element for directing radiation in different directions.

7. The apparatus of claim 6 wherein the apparatus is configured to direct radiation to at least one portion of the oral cavity selected from the group of a tooth, cheek, tongue, palate, throat and facial tissue, lymphatic tissue, blood, gland, follicle, collagen and pigmentation.

8. The apparatus of claim 1 wherein the apparatus further comprises an optical filter for selecting a spectral band of radiation for use in phototherapy.

9. The apparatus of claim 1 wherein the apparatus further comprises a contact sensor and controller which controls the radiation emitter based on signals from the contact sensor.

10. The apparatus of claim 1 wherein the apparatus further comprises an diagnostic sensor and controller which controls the radiation emitter based on signals from the diagnostic sensor.

11. The apparatus of claim 1 wherein the apparatus further comprises at least one thermally conductive element for extracting heat from the emitter.

12. The apparatus of claim 11 wherein the thermally conductive element comprises a fluid heat transfer medium.

13. The apparatus of claim 11 wherein the apparatus further comprises a handle that serves as a heat sink.

14. The apparatus of claim 11 wherein the thermally conductive element comprises a phase change material.

15. The apparatus of claim 11 wherein the apparatus further comprises a heat transfer element for heating a portion of the oral cavity with waste heat from the apparatus.

16. The apparatus of claim 1 wherein the apparatus further comprises a light diffuser optically coupled to the radiation emitting element to deliver diffuse radiation to the oral cavity.

17. The apparatus of claim 1 wherein the apparatus further comprises an airway lumen passing through the applicator body to facilitate breathing by the user during a procedure.

18. The apparatus of claim 1 wherein the body is compliant to facilitate conformation to a portion of the oral cavity.

19. The apparatus of claim 1 wherein apparatus further comprises a body in the form of a mouthpiece adapted for positioning between at least a user's teeth and gums during phototherapy.

20. The apparatus of claim 1 wherein the apparatus further comprises a body adapted for placement in a position covering at least a portion of a user's tongue during phototherapy.

21. The apparatus of claim 1 wherein the apparatus further comprises a body adapted for placement in a fixed position relative to the oral cavity during phototherapy.

22. The apparatus of claim 1 wherein the apparatus is configured such that, upon disposition of the applicator within the mouth, radiation from the emitter can penetrate the muscosal lining of the oral cavity and deliver phototherapeutic energy to a region of facial tissue.

23. The apparatus of claim 1 wherein the apparatus further comprises an ultrasound generator for delivering acoustic energy to a target tissue site.

24. The apparatus of claim 1 wherein the apparatus further comprises a vibrating element for applying intermittent pressure to a target tissue site.

25. The apparatus of claim 1 wherein the apparatus further comprises a drug delivery port.

26. The apparatus of claim 1 wherein the apparatus further comprises an energy reflector for redirecting phototherapeutic radiation towards a target tissue site.